

# A Structural Equation Model of Factors Influencing Satisfaction of University Students in Myanmar

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## Abstract

Satisfaction among university students derives from a variety of factors. It is indicated by the literature that personal, instructional, university, social, and outcome-related factors collectively contribute to the satisfaction of university students within the context of higher education. The purpose of this research was to develop and confirm the validity of the factors influencing student satisfaction of university students. A total of 1814 university students (644 males and 1094 females) from eleven universities in Myanmar participated in this study in February 2020. Various validated instruments, including established standardized measures and self-developed instruments, were employed for assessing both student satisfaction and its underlying factors. The structural equation modeling approach was done to confirm the validity of the model on factors influencing student satisfaction of university students. SEM results confirmed that instructional factors, social factors and outcome-related factors had direct effect on student satisfaction but personal factors and university factors had only indirect effect through social factors. Totally, 64.5 % of the variance in student satisfaction can be explained by the structural equation model. This study provided a research insight on the relationship of factors influencing student satisfaction and important implications for stakeholders to develop intervention plans and ways to improve university students' satisfaction.

**Keywords:** *student satisfaction, structural equation modeling, personal factors, social factors, university factors, instructional factors, outcome-related factors*

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## 1. Introduction

Contemporary higher education institutions face various intricate educational challenges. Enhancing student retention and success rates while meeting their educational needs poses a significant hurdle. To address these challenges, institutions must prioritize the quality of their programs and provide adequate support to students. In an increasingly competitive higher education landscape, ensuring university student satisfaction has become a crucial aspect of maintaining quality assurance. University students' satisfaction is important to institutional success in that effective institutions have satisfied students because this satisfaction supports the enrollment of additional students and persistence of existing students. As a result, most universities around the world are constantly looking at how to improve the satisfaction of students at their institutions.

Student satisfaction is commonly defined as the extent to which a student's perceived educational experience aligns with or exceeds their expectations. It is often measured by assessing the gaps between students' expectations and their perceived reality (Juillerat, 1995). Similarly, college student satisfaction can be described as the degree of enjoyment or fulfillment of requirements, aspirations, or expectations related to the college experience (Astin, 1993). While these definitions are rooted in established literature, it is important to note that more recent studies have continued to explore and refine the concept of student satisfaction in evolving educational contexts. Building upon the definitions in previous literature, Weerasinghe et al. (2017) argued that student satisfaction can be conceptualized as a transient disposition stemming from an assessment of students' educational experiences, the quality of services, and available facilities. Clearly, the satisfaction of students with their studies is central to the success of the sector. The study of student satisfaction allows institutions to be attentive and responsive to the needs and desires of students.

Student satisfaction has the powerful utility value for universities throughout history. In 1996, satisfaction can serve as a useful tool in enhancing retention and consequently boosting enrollment (Upcraft & Schuh, 1996). Additionally, Low (2000) argued that student satisfaction also signifies the institution's effectiveness and vitality. Recruitment and retention have also been found to be positively related to satisfaction (Elliot & Healy, 2001). In 2009, Goho and Blackman contended that student satisfaction can serve as an indicator of both educational and

overall quality of an institution. From an institutional perspective, satisfied students are more inclined to persist with their studies and achieve academic success (Duque, 2014). This trend is expected to improve the financial position and reputation of the institution. Therefore, the utility of this construct can be readily seen in the area of quality development of universities. And thus, maintaining and improving student satisfaction to its fullest extent is the ultimate goal of higher education institutions, universities and colleges (Wong & Chapman, 2023).

As Myanmar's higher education system undergoes significant reforms, including the granting of greater autonomy to universities and the introduction of university-level quality assurance assessments, the importance of continuously evaluating and enhancing student satisfaction cannot be overstated. Administrators and policymakers, tasked with the development and improvement of higher education, must recognize the vital role of student satisfaction in achieving their objectives. To address this critical need, this research is designed to explore the factors that can either enhance or diminish the satisfaction of university students. By doing so, it aims to provide valuable insights for decision-makers as they shape the future of higher education in Myanmar.

No single factor can comprehensively account for student satisfaction in university settings; it is influenced by a multitude of personal, financial, social, and institution-specific factors. According to Witt and Handal's (1984) person-environment fit theory of student satisfaction, predictors include the alignment between the environment and individual personal characteristics. Legitimizing models propose that satisfaction stems from the opportunities a student's degree affords them. Li and Carroll (2017) noted that within Bean and Bradley's (1986) model, there is an anticipation of seven exogenous factors exerting an influence on satisfaction. These factors encompass institutional fit, academic integration, utility, academic challenges, social interactions, participation in campus organizations, and class standing. Benjamin and Hollings (1995) employed the Quality of Student Life approach to support an ecological theory of satisfaction, finding that life satisfaction and campus satisfaction are interconnected. If students are satisfied with one aspect, they tend to be satisfied with the other. This underscores the intricate nature of student satisfaction, shaped by various factors, necessitating the development of a comprehensive model capable of fully elucidating these predictors.

Recent research findings contribute significant insights into the multifaceted dynamics of student satisfaction in higher education. Studies such as Temizer and Turkyilmaz's (2012) 'student satisfaction index model' highlight the importance of factors like university image, student expectations, perceived quality, and perceived value as influential predictors of student satisfaction. Additionally, Osman and Saputra's (2019) 'Pragmatic model of student satisfaction' emphasizes the mediating role of image between service quality and student satisfaction, shedding light on the intricate relationships between these elements. Furthermore, the study by Haverila et al. (2021), which introduces a 'comprehensive student satisfaction model,' highlights the significance of perceived educational service quality and value for money as key predictors of student satisfaction. Additionally, it underscores the impact of social and technology constructs on shaping university image, as well as the influence of assessment, program goals, and education constructs on overall service quality.

These findings collectively emphasize the complexity and interconnectivity of factors contributing to student satisfaction. They underscore the need for a comprehensive model that can both conceptually and empirically elucidate the intricate web of influences on student satisfaction within Myanmar Higher Education Institutions. As such, this study seeks to address this pressing research gap by proposing and validating a comprehensive model that can holistically explain the factors influencing student satisfaction in the context of Myanmar Higher Education Institutions.

In their 2020 study, Than and Khaing conducted a meta-analysis to synthesize five groups of factors that influence student satisfaction. Their findings revealed that self-efficacy (SE), motivation (both external (EM) and internal (IM)), and the overall college experience (CE) emerged as the most influential personal factors impacting student satisfaction. Among instructional factors, it was determined that courses (C), learning environment (LE), and teaching and instruction (TI) played the most pivotal roles in determining student satisfaction. When examining university factors, service quality (comprising responsiveness (RES), reliability (REL), assurance (ASS), empathy (EMP), and tangibles (TAN)), cost, and reputation (R) ranked highest in their influence on student satisfaction. Student-teacher relationships (STR) and social presence (SP) stood out as the most significant among the social factors. Additionally, job prospects (JP) and the development of skills (SD) were identified as the most influential outcomes-related factors driving student satisfaction. These findings

underscore the multifaceted nature of student satisfaction and highlight the importance of considering these factors when shaping university functions to maximize student satisfaction.

Given the insights provided by the aforementioned factors, this study proposes a comprehensive model for predicting the factors influencing student satisfaction among Myanmar university students. Specifically, the study proposes that the personal, instructional, university, social, and outcome-related factors identified exert direct influences on the overall student satisfaction of university students. Therefore, the primary objective of this study is to validate the proposed model, confirming the factors that significantly contribute to student satisfaction in the university context.

This study is expected to establish a robust theoretical foundation for understanding student satisfaction, offering valuable guidance for educators and stakeholders engaged in various aspects of university education planning and implementation. Accordingly, this study will also add powerful evidence about factors affecting student satisfaction, potentially shaping future research endeavors in this field.

## **2. Literature Review**

Student satisfaction is a crucial indicator of the quality of higher education institutions and plays a significant role in student retention and success. Understanding the factors that influence student satisfaction is essential for institutions to enhance the overall educational experience and meet the evolving needs of their students. This literature review aims to synthesize and analyze existing literature and researches on the various factors that contribute to student satisfaction in higher education.

### ***2.1. Student satisfaction***

Students' satisfaction is a short-term attitude, resulting from an evaluation of a students' educational experiences. Elliot and Shin (2002) define student satisfaction as students' disposition by subjective evaluation of educational outcomes and experience. Carey et al. (2002) define student satisfaction as a function of relative level of experiences and perceived performance about educational service during the study period. Therefore, students' satisfaction can be defined as a short-term attitude resulting from an evaluation of students' educational experience, services and facilities (Weerasinghe et al., 2017).

Satisfaction refers to the realization of one's needs or desires and the enjoyment derived from this realization. Student satisfaction can be defined as the emotional response, be it pleasure or disappointment, that arises from evaluating a student's perceived experience in college in relation to his/her expectations. When his experience does not meet expectations, it leads to dissatisfaction. When it aligns with expectations, the student experiences satisfaction. When the experience surpasses expectations, the student is not just satisfied but highly delighted.

## ***2.2. Theoretical framework for factors influencing student satisfaction***

Student satisfaction is a complex construct influenced by a variety of characteristics of students and institutions (Thomas & Galambos, 2004). There are also a number of theories suggesting factors influencing student satisfaction in the higher education context. By highlighting the different lenses through which satisfaction is examined, they can be categorized into the different theoretical perspectives and frameworks that are being used to explain student satisfaction, such as psychological perspective, engagement perspective, service quality perspective and outcome-related perspective. In this study, these theories are presented by categorizing them according to their support for factors influencing student satisfaction: personal factors, social factors, instructional factors, university-related factors and outcome-related factors.

***Personal factors.*** According to Expectancy-Value Theory, student satisfaction is influenced by their expectations and the perceived value of their educational experience. An individual's prior experiences, beliefs and goals can shape his/her motivation by inspiring the reasons for doing this activity (Mathew et al., 2022). Moreover, past success or failure can impact a person's expectation for success. Artino (2008) found that self-efficacy was a significant individual predictor of students' overall satisfaction with the online training. Moreover, previous researches have shown that self-efficacy is significantly related with adaptive outcomes, including students' performance and satisfaction in traditional classrooms (Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1990; Doménech-Betoret et al., 2017; Chooi-Seong et al., 2021). Furthermore, DeWitz and Walsh (2002) extended Bandura's theory of self-efficacy to the realm of higher education and discovered a significant association between college self-efficacy and college satisfaction. In contrast to students who possess lower perceived self-efficacy, those with a strong sense of efficacy tend to employ learning

strategies more frequently (Joo et al., 2000; Artino & Stephens, 2006; Hayat et al., 2020; Hayat & Shateri, 2019). Additionally, they experience higher satisfaction and are more inclined to enroll in subsequent online courses (Lim, 2001; Artino, 2008). In 2005, DeShields, Kara and Kaynak investigated the factors contributing to student satisfaction and retention based on Herzberg's two-factor theory. It was found that student who has positive college experience are more satisfied with the university than those students who do not have experiences. Therefore, students who have high motivational beliefs, positive school experiences and high perceived self-efficacy are more likely to be satisfied with their overall university experience.

As another perspective, Self-Determination Theory focuses on the psychological needs that influence student satisfaction. It suggests that students' satisfaction is linked to their fulfillment of three fundamental psychological needs: autonomy (the sense of control and choice in their educational experience), competence (feeling capable and successful in their academic pursuits), and relatedness (experiencing positive relationships and connections with peers, faculty, and the institution). According to this view, personal factors such as educational experiences and self-efficacy, and relationships with others may influence student satisfaction with varying patterns in any educational contexts.

***Social Factors.*** Student Engagement Theory examines the social aspect of student satisfaction by emphasizing students' active involvement, investment, and relationships within the educational setting. As outlined by Stukalina (2014), a university functions as a societal environment fostering the social integration and personal growth of students. Students should be recognized as engaged participants within the academic community, and this engagement significantly influences student satisfaction. College, for most students, is not only a time of academic pursuits but also an opportunity to explore or enhance themselves as social beings (Roberts & Styron, 2010). The social lives of students, and their exchanges with others inside and outside the institution, are important in retention decisions (Bean, 2005; Roberts & Styron, 2010).

***Instructional Factors.*** Instructional factors play a significant role in influencing student satisfaction in higher education. These factors encompass various aspects of the teaching and learning process. Student Engagement Theory suggests that student satisfaction is closely tied to their level of engagement in the learning process. Engagement refers to the active involvement, investment, and interest that students have in their academic work and the

broader university experience. There are numerous evidences that higher levels of engagement with instructional process are associated with increased satisfaction and positive educational outcomes.

Yusoff et al. (2015) identified twelve underlying variables that significantly influence students' satisfaction in Malaysian higher education setting including professional comfortable environment, student assessment and learning experiences, classroom environment, lecture and tutorial facilitating goods, and other instructional factors. Kanan and Baker (2006) found that academic programs make significantly impact on students' satisfaction towards Palestinian developing universities. In addition, Navarro et al. (2005) indicated that teaching staff, teaching methods and course administration have significant effect on students' satisfaction in Spanish University System.

Based on the literature, one can easily see the importance of instructional factors such as teaching quality, teaching methods, assessment quality, course designs and curriculum, and classroom environment that may influence student satisfaction in any educational contexts. It is important to note that these instructional factors are interconnected, and their impact on student satisfaction may vary depending on the specific educational context. Therefore, it is necessary to examine the patterns of relationships among these instructional factors and student satisfaction in the higher education context.

***University-related Factors.*** The SERVQUAL model is a widely used framework in service quality research. It identifies five dimensions that influence customer satisfaction, which can be applied to the higher education context as well. These dimensions include reliability (consistency in delivering services), responsiveness (timeliness and promptness in addressing student needs), assurance (knowledge and competence of staff and faculty), empathy (caring and understanding demonstrated by the institution), and tangibles (physical facilities and resources).

Petruzzellis et al. (2006, cited in Manzoor, 2013) also regarded students as customers of universities and made the conclusion that universities need to adopt a customer centric approach. They analyzed common factors such as lecture halls, laboratories, equipment, library, dining hall, dormitories, leisure activities, language courses, scholarships, internet



access, exam booking, contacts with teachers, administrative services, tutoring, counseling, internship, international relationship and placement.

As other university-related factors, university image and reputation had both direct and indirect effect on student satisfaction and loyalty (Alves & Rapaso, 2010; Sopon, Ilies & Petean, 2013; Alzamel, 2014; Hanssen & Solvoll, 2015; Mallika & Torii, 2019). Early studies have reported that financial aid significantly increases the probability that a student will remain (Murdock, 1987; Langbein & Snider, 1999, cited in Sweeney, 2016). Financial concerns are commonly cited as an important reason for their departure from college (Astin & Oseguera, 2005, cited in Sweeney, 2016). This was cited as a factor leading to non-completion in studies conducted in the UK (Yorke, 1999; Davies & Elias, 2003) and Ireland (Healy et al, 1999, cited in Sweeney, 2016). According to Archuleta et al. (2013), adverse financial situations and financial anxiety can contribute to the student's dissatisfaction.

***Outcome-related Factors.*** Human Capital Theory suggests that students perceive their education as an investment in developing human capital, which includes skills, knowledge, and credentials that can enhance their employability and future career prospects. According to this theory, students are more likely to be satisfied with their education if they perceive it as providing valuable outcomes, such as access to work opportunities, job placement, and career advancement.

While primarily used in the field of organizational psychology, Job Satisfaction Theory can be applied to higher education as well. Job satisfaction theory posits that individuals derive satisfaction from their work when their expectations and needs are met. In the context of student satisfaction, the theory can be extended to consider students as "customers" of higher education. If students perceive that their educational experience leads to favorable work outcomes, such as internships, job placement support, or connections to industry, it can contribute to their overall satisfaction.

Lenton (2015)'s National Satisfaction Survey in Singapore had found student employability as a strong influencer of student satisfaction, and gave suggestion to policy makers to place great emphasis on student support, personal development and employability skills in order to yield an advantage in the higher education marketplace. According to DeShields et al. (2005, cited in Sweeney, 2016), skills developed such as critical

thinking, along with preparation for the future, are also important factors impacting on student satisfaction. Additionally, students with weaker academic performance tend to exhibit lower levels of student satisfaction across various dimensions (Li & Carroll, 2017). This study also explores the impact of work opportunities or outcome-related factors on student satisfaction in higher education.

Since understanding the factors that contribute to student satisfaction has several potential benefits and applications for institutions, students, and society, there had been many theoretical perspectives and previous researches, which examine factors influencing student satisfaction in higher education. Among the numerous relevant studies, there was a comprehensive meta-analysis study of student satisfaction conducted by Than and Khaing (2020). This meta-analysis study summarized student satisfaction studies over the past twenty years and found out about 148 factors as influencing factors on student satisfaction in higher education. They categorized these factors into five different categories as personal, instructional, university, social and outcomes-related factors, and investigated how much effect these have on student satisfaction and which factors are the strongest predictors in each category. As the result of this study, self-efficacy, motivation and college experience were found as the most influencing personal factors for student satisfaction. Then, courses, learning environment and teaching and instruction were the most influencing factors on student satisfaction among instructional factors. Among the university factors, service quality, cost and reputation had the highest influence on student satisfaction. Among the social factors, student-teacher relation and social presence were the most influencing factors. Finally, job prospects and skills developed were found as the most influencing outcomes-related factors for student satisfaction. The results of this meta-analysis study were treated as the conceptual framework of the present study for confirming an empirical model explaining the factors that can predict student satisfaction of university students.

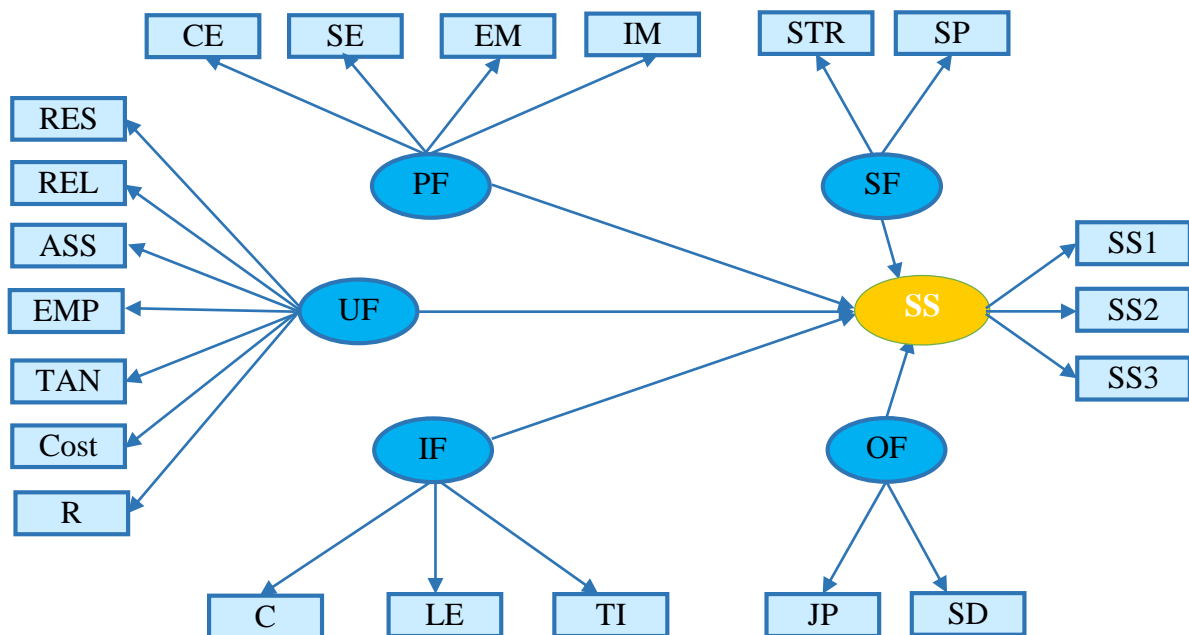
### ***2.3 Aim and hypotheses of the study***

The main aim of this study was to confirm the validity of the factors influencing student satisfaction in Myanmar Universities via structural equation modeling approach.

The research hypotheses are given in table 1. The proposed conceptual model of the factors influencing student satisfaction is shown in figure 1.

**Table 1***Research hypotheses and supporting literature*

Research hypotheses	Supporting literature
H1: Personal factors directly affect student satisfaction.	Quinn, & Hemmings, 2000; Awan & Kara & DeShields, 2004; Rehman, 2013; Artino, 2007; Price, 2016; Pennington, 2017;
H2: Instructional factors directly affect student satisfaction.	Butt & Rehman, 2010; Suarman, et. al., 2013; Stulialina, 2014; Elhadary, 2016; Shirazi, 2017; Li & Carrol, 2017
H3: University factors directly affect student satisfaction.	Kao, 2007; Gruber, et. al., 2010; Awan & Rehman, 2013; Hermawan, et. al., 2014; Baniya, 2016
H4: Social factors directly affect student satisfaction.	So & Brush, 2008; Kuo, 2010; Hirsch, et. al., 2015; Alqurashi, 2017
H5: Outcome-related factors directly affect student satisfaction.	Quinn, & Hemmings, 2000; Tessema, et. al., 2012; Fine & Clark, 2013; Elhadary, 2016; Li & Carrol, 2017

**Figure 1***The proposed conceptual model of factors influencing student satisfaction*

### 3. Methodology

#### 3.1. Research design

This research study aimed to explore the patterns of relationships among the factors influencing student satisfaction of university students in Myanmar. In order to execute the research objectives quantitatively, this study focuses mainly on quantitative research approach by means of survey design. This survey study utilized a cross-sectional design, which is an effective approach for capturing a snapshot of the current behaviors, attitudes, and beliefs within a population.

#### 3.2. Population and sample

The target population for this study was university students in Myanmar during the 2020-2021 Academic Year. Since the elements of the target population represents a large, geographically spread group of people, this study used the multistage cluster sampling technique to make accurate generalizations about the whole population. By means of hierarchical groupings (from ministry level to field of study to university level to year of study level), study participants were selected by using random sampling methods in each stage in order to ensure the external validity and generalizability of the study. The selected sample included a total of 1814 university students from eleven universities in Myanmar. Data were collected at January 2020.

**Table 2**

*Demographic information of participants*

University	Male	Female	Total
Yangon University of Education	91	109	200
Sagaing University of Education	58	142	200
Yangon University of Foreign Languages	43	136	179
Yangon Technological University	60	54	114
Sagaing Cooperative University	85	115	200
Mandalay University	51	120	171
University of Medicine (Mandalay)	81	93	174
Myanmar Maritime University	97	66	163
East Yangon University	36	67	103
National University of Arts and Culture (Mandalay)	49	88	137
Military Institute of Nursing and Paramedical Science	26	147	173
<b>Total</b>	<b>677</b>	<b>1137</b>	<b>1814</b>

### 3.3. Instrumentation

The collected data for this study included many variables such as student satisfaction, academic self-efficacy, motivation, college experience, student-teacher relation, social presence, job prospects, skills developed, service quality, cost, reputation, courses, learning environment, and teaching and instruction. This study utilized some demographic questions and eight instruments for measuring student satisfaction and its factors.

After preparing research instruments, the expert review was conducted for content validity with the help of eighteen experts from the field of Educational Psychology. Pilot study was conducted with a sample of 350 students from Sagaing University of Education. Then, the reliability and validity of the instruments were tested by means of the confirmatory factor analysis approach in order to ensure the internal validity of the study.

***Student satisfaction inventory:*** The Student Satisfaction Inventory developed by Schriener and Juillerat (1994) measures some demographic characteristics, twelve areas of college experience, and summary items for student satisfaction. In this study, the composite value of three summary items was used as the student satisfaction index of university students.

***Academic self-efficacy scale:*** The six-item Academic Self-Efficacy scale developed by Roeser et al. (1996) was used to measure students' academic self-efficacy.

***Service quality questionnaire:*** The Service Quality Questionnaire developed by Parasuraman et al. (1985, 1988) has 22 items in five dimensions named as tangibility, reliability, responsiveness, assurance, and empathy.

***University reputation scale:*** The University Reputation Scale (URS) developed by Telci and Kantur (2014) was used to measure students' perceived reputation of their university with three sub-scales of academic quality, social attractiveness and responsible management.

***Classroom learning environment questionnaire:*** The Classroom Learning Environment Questionnaire (CLEQ) developed by McGhee et al. (2007) was used to measure perceived classroom learning environment of students with three sub-scales: classroom positive, diversity values and personal negative.

***Motivation survey:*** The Motivation Survey (MS), based on Maslow's Hierarchy of Needs (1943), modified by Knutsen (2011) was used to measure students' extrinsic and intrinsic motivators to pursue higher education.

***Student-instructor relationship scale:*** The Student-Instructor Relationship Scale (SIRS) developed by Creasey et al. (2009) was used to measure student-instructor relationship connectedness and anxiety.

**Table 3**

*Summary for internal reliability, construct reliability and convergent validity of all instruments*

<b>Instrument</b>	<b>Internal Reliability</b>	<b>Construct Reliability</b>	<b>Convergent Validity (AVE)</b>
ASES	.75	.76	.35
SQQ	.77	.78	.54
URS	.80	.77	.45
CLEQ	.70	.70	.48
MS	.75	.75	.43
SIRS	.78	.76	.45
SSI	.96	.96	.67

According to the result, the reliabilities and validities of all the measuring tools were in their respective acceptable ranges (internal reliability > .70, construct reliability > .70 and convergent validity > .40), except Academic Self-Efficacy Scale. However, the Academic Self-Efficacy Scale showed the high internal reliability (0.75) and construct reliability (0.76) while its convergent validity of 0.35 was a little lower than the acceptable value. Therefore, it can be interpreted that all instruments used in this study are highly reliable and valid instruments for measuring university students' satisfaction and its related factors.

### ***3.4. Statistical analysis***

As this research primarily aims to validate a model for predicting student satisfaction based on several latent factors, the structural equation modeling approach was employed as the primary data analysis technique. Structural Equation Modeling (SEM) is a robust analytical technique commonly utilized by researchers in social sciences, such as economists, educators, and marketing experts. SEM allows for comprehensive testing and enhancement of theoretical models, providing insight into cause-and-effect relationships within mixed hypotheses derived from statistical dependencies. This approach can help the researchers to test the models and patterns of relationships among numerous observed and latent variables. In R studio (version

3.5.2), SEM was conducted by using the lavaan package (Latent Variable Analysis) and the semPlot package.

Structural equation modelling (SEM) is a method which integrates a number of different multivariate techniques into one model fitting framework. According to Nachtigall et al. (2003), a general SEM model consists of two parts. These parts are a measurement model and a structural model.

A *measurement model* depicts the relations between the observed and the latent variables. Observed variables correlate only with measured latent variables and as a result the variance explained by the linear dependency of the observed variable on the latent variable represents every ‘valuable’ variance of the observed variable (Urbánek, 2000, cited in Pavlina, 2015). The relations between the latent variables are measured in a *structural model*. This model detects which latent variable is independent (exogenous) and which latent variable is dependent (endogenous).

The proposed model's validity is assessed through multiple chi-squared tests, while the rate of change of a conditional mean is interpreted as a regression coefficient. Various goodness-of-fit indexes, such as the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR), were employed to evaluate the model's accuracy. Additionally, modification indexes were utilized to enhance the model's performance.

## 4. Findings and Discussion

In this study, structural equation modeling approach was used to assess the validity of the proposed theoretical model for factors influencing student satisfaction. Before running SEM, some SEM assumptions were checked. Normality assumptions were met after removing outliers by checking z scores, skewness, kurtosis and Mahalanovis distance. Among 1814 participants, 86 cases were removed and the variable “Cost” was removed to meet the criteria of normality. Then, the variable “college experience” was removed because of high multicollinearity with other factors. After meeting all assumptions, SEM was run in R Studio (3.5.2) using the lavaan package and semPlot package. In order to test the consistency between

the predicted and observed data matrix, many fit indexes were calculated with the results shown in table 4.

**Table 4**

*Summary of all fit index for the structural equation model*

<b>Fit Index</b>	<b>Ideal Standard</b>	<b>First Model</b>	<b>Revised Model</b>
RMSEA	<.07	.085	.068
RMSEA	<.07	.085	.068
TLI	>.9	.861	.917
CFI	>.9	.883	.933
SRMR	<.05	.078	.043

In general, the main purpose of the study was to verify the influence of the personal, social, instructional, outcome-related and university factors towards student satisfaction. Before evaluating hypotheses of the study, goodness of the structural equation model was assessed. The ideal standards for fit indexes were adapted from Hooper et al. (2008) guidelines for determining model fit for structural equation modelling. Assessment of goodness test showed the proposed model does not fit the actual data well since the values of fit indexes are not in the acceptable range. Therefore, the measurement model and structural model were revised according to the modification indexes with the assistance of the supporting literature.

The measurement part of the SEM model without the indicator “cost” in the latent factor “university-related factors” and the indicator “college experience” in the latent factor “personal factors” showed a good fit with the data. In the structural part of the SEM model, the direct paths from personal factors and university-related factors to student satisfaction were not significant and therefore, the indirect paths through the social factors had to be added to improve the model with the support of the self-determination theory. Then, the revised model fits well with the actual data, with all fit indexes in the acceptable range.



**Table 5***Analysis of the measurement model*

Latent Construct	Observed Variable	Factor Loading	UNSTD	SE	<i>p</i>
PF	SE	.505	1.000		
	ME	.489	1.268	0.088	.000
	MI	.317	0.930	0.089	.000
SF	STR	.670	1.000		
	SP	.685	0.484	0.021	.000
IF	C	.725	1.000		
	LE	.554	1.203	0.051	.000
	TI	.681	1.107	0.027	.000
OF	JP	.324	1.000		
	SD	.740	5.406	0.411	.000
UF	RES	.855	1.000		
	REL	.875	1.022	0.021	.000
	ASS	.842	0.932	0.021	.000
	EMP	.763	1.052	0.028	.000
	TAN	.725	0.734	0.021	.000
	R	.719	2.409	0.069	.000
SS	SS1	.762	1.000		
	SS2	.797	1.098	0.037	.000
	SS3	.646	1.238	0.050	.000

According to table 5, all factor loadings in each latent construct are significant. Moreover, acceptable fit indexes confirm the validity of the measurement model. After that, the direct effects, indirect effects and total effects of all factors included in the structural model were presented in table 6.

**Table 6***Summary of causal effects for the structural model (student satisfaction)*

Outcome	Determinant	Causal Effects		
		Direct	Indirect	Total
SF (R <sup>2</sup> =.899)	PF	.712***	-	.712***
	UF	.282***	-	.282***
SS (R <sup>2</sup> =.645)	PF	-.41	.343*	-.067
	SF	.482*	-	.482*
	OF	.411***	-	.411***
	IF	.279**	-	.279**
	UF	.028	.136*	.164**

*Note.* \*\*\* denotes significant paths t at  $p < .001$ .

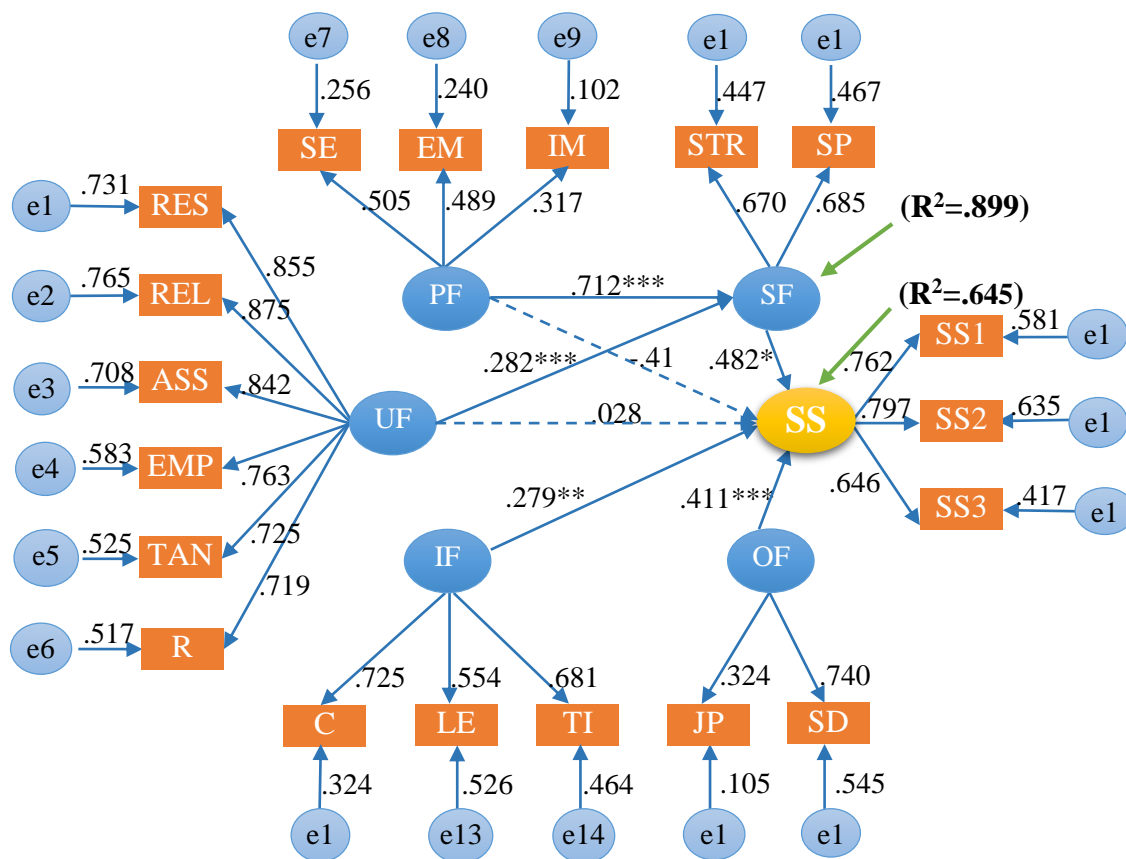
\*\* denotes significant paths t at  $p < .01$ .

\* denotes significant paths t at  $p < .05$ .

Table 6 shows that among the five latent variables, social factor, outcome-related factor and instructional factor had direct significant effects on student satisfaction when all variables were included. The personal and university factors had significant indirect effect on student satisfaction through the mediation of social factor. Specifically, consistent partial mediation was found between university factor and student satisfaction by social factor. Interestingly, supplementary partial mediation occurs between personal factor and student satisfaction by social factor. Totally, 64.5 % of the variance in student satisfaction can be explained by the structural model.

**Figure 2**

*Results of SEM for the structural equation model of factors influencing student satisfaction of university students*



This study revealed that personal factor had insignificant direct effect on student satisfaction when all variables were included. Therefore, the hypothesis **H1** was revised that personal factor had indirect effect on student satisfaction through the mediator of social factor with the support of some literature. The result of SEM confirmed the revised hypothesis by

showing that personal factor had very large significant effect on social factor which in turn directly affected student satisfaction. Therefore, the **revised hypothesis H1** was confirmed by the study. It can be interpreted that university students with high self-efficacy and high extrinsic and intrinsic motivation were more likely to involve in university's social activities and have strong social relations with teachers, friends and other personnel. This may eventually lead to their satisfaction towards different university service areas. However, it should be noticed that high self-efficacy and high motivation only may lead to low satisfaction, if it is not mediated by social relations. Therefore, university's social services played a special role in directing students with high self-efficacy and motivation towards great satisfaction.

The result of SEM also showed that instructional factor had significant direct effect on student satisfaction. Therefore, the second hypothesis **H2** was confirmed by the model. It can be interpreted that students' positive attitudes on university's courses, learning environment and instructional practices contribute to their satisfaction towards the university.

This study revealed that university factor had insignificant direct effect on student satisfaction when all variables were included. Therefore, the hypothesis **H3** was revised that university factor had indirect effect on student satisfaction through the mediator of social factor with the support of some literature. The result of SEM confirmed the revised hypothesis by showing that university factor had significant effect on social factor which in turn directly affected student satisfaction. Therefore, the **revised hypothesis H3** was confirmed by the study. It can be interpreted that the higher the perception of service qualities and reputation of the university, the higher the students' involvement in social activities and relations with teachers, peers and personnel. This may eventually lead to their satisfaction towards different university service areas.

Moreover, the result showed that social factors had direct significant effect on student satisfaction when all variables were included. Therefore, the hypothesis **H4** was confirmed by the study. It can be interpreted that the students' involvement in social activities and relations with teachers, peers and personnel contribute to their satisfaction towards the university.

Finally, the result revealed that outcome-related factors had direct significant effect on student satisfaction when all variables were included. Therefore, the hypothesis **H5** was confirmed by the study. It can be interpreted that the students in universities which guarantee

higher job prospects and skills after graduation are more likely to show more satisfaction towards their universities.

In brief, instructional, social and outcome-related factors had significant direct effect on student satisfaction and personal and university factors had significant indirect effect on student satisfaction through mediators of social factors.

## 5. Conclusion

Every university has the desire and eagerness to retain their students and to have them perform well; therefore, it is important to consider the relationship between satisfaction and the predictor variables. The results of this study identify predictors of student satisfaction that have significant relationship with satisfaction. The main purpose of the study was to verify the influence of the personal, social, instructional, outcome-related and university factors towards student satisfaction. Among the five latent variables, social factor, outcome-related factor and instructional factor had direct significant effects on student satisfaction when all variables were included. The personal and university factors had significant indirect effect on student satisfaction through the mediator of social factor. Totally, 64.5 % of the variance in student satisfaction can be explained by the structural model.

Assessment of revised **H1** showed that personal factors influence social factors which in turn influence student satisfaction in Myanmar university context. Moreover, supplementary mediation indicates that students with very high self-efficacy and motivation may not be satisfied with university services if they were not engaged in social activities and relations. Only when they involve in various social areas, their satisfaction towards their university may accordingly increase. Therefore, in order to improve their satisfaction, universities should create a warm social environment, admitting various social activities. Moreover, healthy and interactive communication should be established between students and teachers/leaders to provide all necessary information to them regarding curriculum, offerings and opportunities.

Assessment of **H2** showed that instructional factors directly influence student satisfaction in Myanmar university context. This means that courses, learning environment, and teaching and instruction greatly contribute to enhancement of student satisfaction. This result is consistent with those of previous studies of Mai (2005), Aldemir (2004), Navarro et al. (2005), and Butt and Rehman (2005). In order to improve student satisfaction, stakeholders

and universities should pay special attention into quality of courses, establishment of conducive and favorable learning environment and teaching effectiveness.

Assessment of the revised **H3** showed that university factor had significant effect on social factor which in turn directly affected student satisfaction. The higher the perception of service qualities and reputation of the university, the higher the students' involvement in social activities and relations with teachers, peers and personnel will be. This may eventually lead to their satisfaction towards different university service areas. This finding aligns with prior researches conducted by Hisharmuddin and Azleen (2008), Yunus et al. (2010), and Asaduzzaman et al. (2013). In order to improve student satisfaction, qualities of university services such as responsiveness, reliability, assurance, empathy and tangibility should be met. Moreover, teachers and administrators should also emphasize academic quality, social attractiveness and responsible management to improve reputation of the university.

Assessment of **H4** showed that social factors directly influence student satisfaction in Myanmar university context. This means that student-teacher relation and participation in university' social activities and clubs enhance student satisfaction. This result is consistent with those of previous studies of Siming et al. (2015), Ali et al. (2010), and Suarman et al. (2013). In order to improve student satisfaction, stakeholders and universities should pay special attention to the importance of social values by encouraging learner-centered instruction, class discussions, easy communication with teachers.

Assessment of **H5** showed that outcome-related factors directly influence student satisfaction in Myanmar university context. This means that students' expectation on job prospects and skills developed enhance student satisfaction. This result is consistent with those of previous studies (Li & Carrol, 2017; Elhadary, 2016; Fine & Clark, 2013; Tessema, et. al., 2012). Students were satisfied when they perceived that they gained specific skills that will help them find suitable jobs (Elhadary, 2016). In order to improve student satisfaction, stakeholders and universities should pay special attention to the design and implementation of curriculum and subject contents emphasizing development of skills for job prospects. Moreover, students should be provided with adequate training, internships and workshops.

In conclusion, the study's findings serve as a practical guide for top management of higher education institutions, focusing the importance of the ongoing evaluations of service quality, courses, instruction, social services and skill training assessments on a periodic basis in order to foster continuous student satisfaction. Furthermore, future research endeavors can

build upon these insights to develop targeted interventions aimed at identifying the most malleable predictors of satisfaction, ultimately leading to the largest gains in satisfaction. At a minimum, this study has confirmed that student satisfaction is a terribly important variable to consider in higher education and has important implications for intervention planning to improve retention. Additionally, it contributes to the body of knowledge by providing empirical evidence that can inform the development and further investigation of theories concerning college student satisfaction.

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